

line through the margin of the tuberosity of the ischium. In 3 out of 20 cadavers, the horizontal line was from 1 to 1.5 cm. too high. In all the others the junction of these two lines was exactly at the point where the nerve, immediately after making its exit from the great sciatic foramen, lies directly on the bone. Almost without exception, colored gelatin injected at this point was found by dissection either directly over or under the nerve or within the nerve substance. In most of his clinical cases, the injection of the sciatic and anterior crural nerves was combined, and in all operations during the work on the soft tissues the anesthesia was complete. During the manipulations of the bone, as in lifting the periosteum or sawing the bone, considerable sensibility remained. In the more recent cases, he has injected, not 10 but 15 to 20 cm. of the novokain solution with 7 to 10 drops of adrenalin, and in this way he obtained an anesthesia complete enough to permit him in a man, aged seventy-eight years, to amputate the anterior portion of the foot for gangrene. The technique of the injection is as follows: The patient is placed in the prone position and the point for the injection is determined as above stated. An 8 cm. long needle is introduced at right angles to the surface down to the bone. When the bone is not struck, the needle is tried somewhat higher or further outward from this point. When the needle strikes the bone it is withdrawn a few millimeters and 10 c.c. of a 2 per cent. novokain-adrenalin solution is injected for operations on the soft tissues, 15 to 20 c.c. for operations on the bone. In the former cases, the operation may be begun after a half hour, in the latter not sooner than an hour after the injection. This method was employed in 12 cases. In only 1 did no anesthesia develop. In all the others, however, the soft tissues were anesthetized completely and the bones in varying degrees. In most cases it will be necessary to inject the anterior crural nerve also as Lawer advised. The skin supplied by the obturator nerve is so small in area that it can be injected with a small quantity of the fluid.

Investigations Concerning Surgical Methods of Treatment for Trigeminal Neuralgia.—OTTO (*Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1912, xxv, 78) considers that the justification of the operative treatment for trigeminal neuralgia is generally recognized, but that just which operation should be done in a given case is not an easy question to decide. Neither the peripheral operations nor the resections at the base of the skull, will always give permanent relief. Even the extirpation of the ganglion in many cases gives only temporary relief, probably because of incomplete operations. Only rarely do we find the seat of changes in the nerve and the mode of origin of the neuralgia is rarely determined. Nor do we know whether the neuralgia is due to functional or organic disease. As the result of his studies, Otto believes that the peripheral operations are frequently followed by recurrence. Thiersch's nerve exeresis in most cases leads to recurrence, very frequently after a few months. The condition recurs more rarely after resections at the base of the skull. Extirpation of the Gasserian ganglion gives the best results, provided the ganglion is wholly removed. The operation is, however, technically difficult and should be reserved for otherwise hopeless cases and especially for those in which the three

branches of the ganglion are involved. Under these circumstances, one is fully justified in trying out the injection method of combating the affection. Alcohol (70 to 80 per cent.) is the most suitable fluid with which to inhibit the conductivity of the nerves without damaging the other tissues. The deep injection at the base of the skull suffices even in severe cases to anesthetize the regions supplied by the treated branches for months, and it can be repeated without danger. The effect usually lasts a long time, but whether a permanent cure may result remains to be proved. The Offerhaus method is favored because it is easily performed without previous practice. It is without danger, and may be employed to obtain anesthesia for the performance of operations in the trigeminus regions.

End Results of Fracture of the Shaft of the Femur.—ESTES (*Annals of Surgery*, 1912, lvi, 162) summarizes the conclusions on 760 tabulated cases of fracture of the shaft of the femur as follows: The records of fractures are kept very incompletely and it is quite impossible in the United States to obtain anything like full, accurate, and reliable data of a large number of finished cases. The largest number of cases of fracture of the shaft of the femur occurs in men aged between twenty and fifty years. Children aged under ten years have the next largest number. Working people furnish the largest number of cases, though data in regard to this point are not kept in the majority of cases. Indirect violence produces by far the largest number of these fractures. Of the reported cases, the middle third of the bone is most frequently broken, the lower and upper thirds are almost equally involved. Simple fractures far outnumber the compound and complicated ones. The average shortening before reduction is 1.38 inch. By far the most frequent method of treatment was by some form of Buck's extension. An anesthetic was not used to assist reducing the fractures in the majority of reported cases. The average weight used in extension was 14 pounds. (This is too little weight.) The average reported shortening of completed cases is one-half an inch. Average length of time in bed, 8.2 weeks. Average length of time incapacitated, 2.7 months. (This is probably a mistake.) Average length of time crutches, canes, or other aids in walking were used, 8 weeks. Limp was present for some time in the large majority of cases. A little more than one-tenth of the cases had excessive callus which produced some disturbance. Nearly all the reported measurements were taken from the anterior superior spine of the ileum to the internal malleolus. Disability estimated by: (a) Endurance, (b) pain, (c) swelling, (d) interference with joint function; present in about 1 case in 25. Death rate of reported cases, 3.69 per cent. (This Estes believes is a mistake.) Chief causes of death: (a) Pneumonia, (b) shock and exhaustion, (c) delirium tremens. Estes' first recommendation and deduction from his work is that teachers in medical schools should give far more attention than they have done in the last decade or more to their own investigations of fractures, and to the teaching of this most important branch of surgery to the students who belong to their classes. Second, while recognizing the fact that x-ray photographs may be most misleading, the writer believes, nevertheless, when taken by competent anatomists who understand the importance of proper